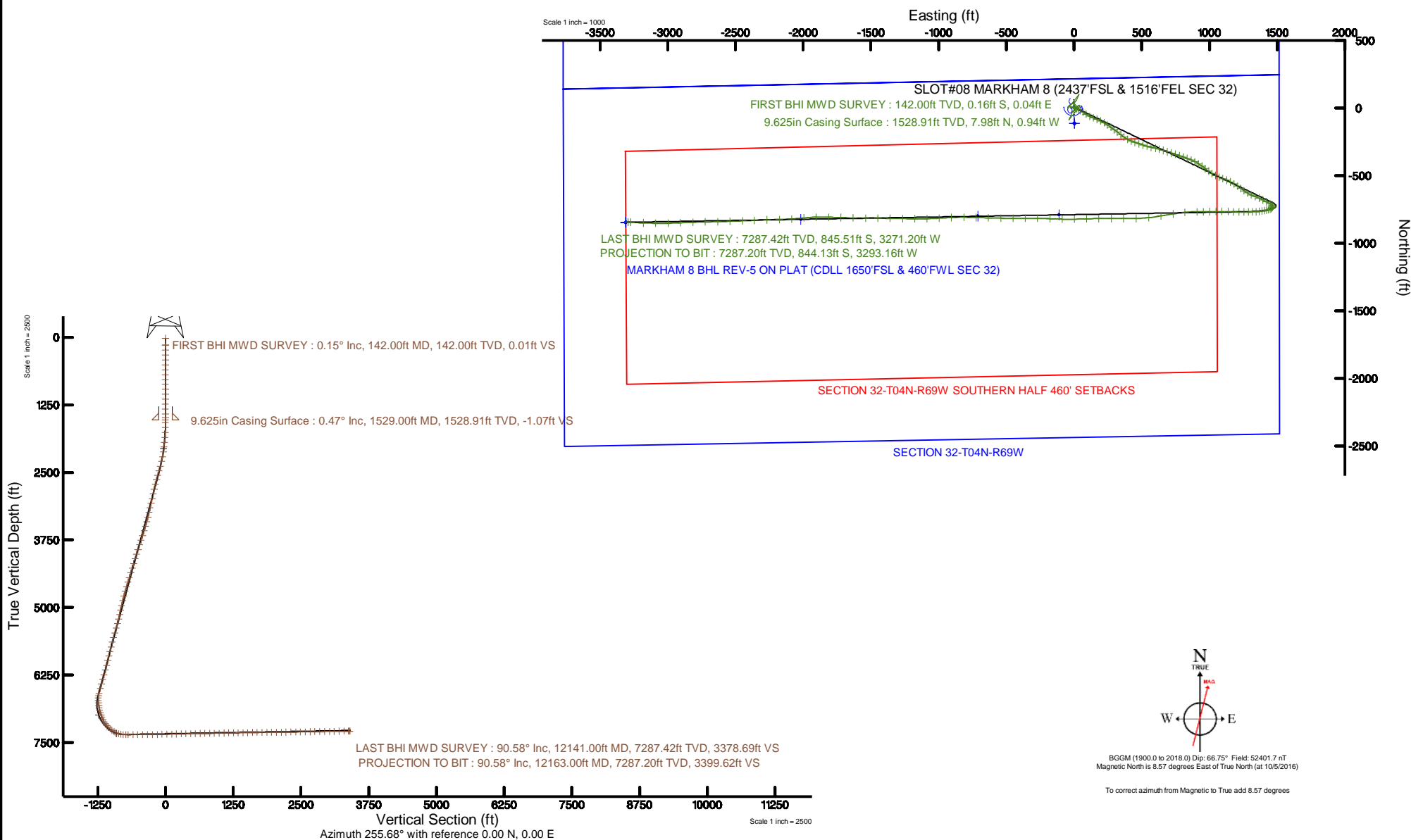


CUB CREEK ENERGY, LLC

Location: COLORADO Slot: SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)
 Field: WELD COUNTY (NAD83, TRUE NORTH) Well: MARKHAM 8
 Facility: SEC.32-T04N-R68W Wellbore: MARKHAM 8 PWB

Plot reference wellpath is MARKHAM 8 REV-F.0 PWP	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to XTREME 18 (17) (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to XTREME 18 (17) (RKB)	North Reference: True north
XTREME 18 (17) (RKB) to Mean Sea Level: 5058 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: bensijacj on 2016-10-13
	Database: WA_DEN_Denver_Defn





Actual Wellpath Report

MARKHAM 8 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 8
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 8 AWB
Facility	SEC.32-T04N-R68W		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Bensjacj
Scale	0.999957	Report Generated	10/13/2016 at 3:48:39 PM
Convergence at slot	0.31° East	Database/Source file	WA_DEN_Denver_Defn/MARKHAM_8_AWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	112.94	-2.80	3133069.37	1341170.45	40°16'08.148"N	105°01'23.268"W
Facility Reference Pt			3133072.77	1341057.53	40°16'07.032"N	105°01'23.232"W
Field Reference Pt			3133072.77	1341057.53	40°16'07.032"N	105°01'23.232"W

WELLPATH DATUM

Calculation method	Minimum curvature	XTREME 18 (17') (RKB) to Facility Vertical Datum	5058.00ft
Horizontal Reference Pt	Slot	XTREME 18 (17') (RKB) to Mean Sea Level	5058.00ft
Vertical Reference Pt	XTREME 18 (17') (RKB)	XTREME 18 (17') (RKB) to Mud Line at Slot (SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32))	5058.00ft
MD Reference Pt	XTREME 18 (17') (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	255.68°



Actual Wellpath Report

MARKHAM 8 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 8
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 8 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (147 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
17.00	0.000	167.600	17.00	0.00	0.00	0.00	40°16'08.148"N	105°01'23.268"W	0.00	
142.00	0.150	167.600	142.00	0.01	-0.16	0.04	40°16'08.146"N	105°01'23.268"W	0.12	FIRST BHI MWD SURVEY
234.00	0.390	59.770	234.00	-0.29	-0.12	0.33	40°16'08.147"N	105°01'23.264"W	0.50	
326.00	0.250	108.690	326.00	-0.76	-0.03	0.79	40°16'08.148"N	105°01'23.258"W	0.32	
418.00	0.500	354.920	418.00	-0.99	0.31	0.95	40°16'08.151"N	105°01'23.256"W	0.70	
510.00	0.740	343.100	509.99	-1.03	1.28	0.74	40°16'08.161"N	105°01'23.258"W	0.29	
603.00	0.840	12.250	602.98	-1.31	2.52	0.71	40°16'08.173"N	105°01'23.259"W	0.44	
693.00	1.120	16.270	692.97	-2.05	4.01	1.09	40°16'08.188"N	105°01'23.254"W	0.32	
783.00	0.160	191.420	782.96	-2.45	4.73	1.32	40°16'08.195"N	105°01'23.251"W	1.42	
874.00	0.440	230.860	873.96	-2.07	4.38	1.02	40°16'08.191"N	105°01'23.255"W	0.37	
964.00	1.150	284.000	963.95	-0.96	4.38	-0.12	40°16'08.191"N	105°01'23.270"W	1.06	
1056.00	0.950	334.740	1055.94	-0.01	5.30	-1.35	40°16'08.200"N	105°01'23.285"W	1.00	
1148.00	1.050	38.480	1147.93	-0.53	6.65	-1.15	40°16'08.214"N	105°01'23.283"W	1.15	
1240.00	0.920	1.220	1239.92	-1.40	8.04	-0.61	40°16'08.227"N	105°01'23.276"W	0.70	
1329.00	0.480	231.390	1328.91	-1.25	8.53	-0.88	40°16'08.232"N	105°01'23.279"W	1.44	
1418.00	0.220	246.640	1417.91	-0.75	8.23	-1.33	40°16'08.229"N	105°01'23.285"W	0.31	
1487.00	0.390	111.620	1486.91	-0.81	8.09	-1.23	40°16'08.228"N	105°01'23.284"W	0.82	
1581.00	0.580	107.510	1580.91	-1.47	7.83	-0.48	40°16'08.225"N	105°01'23.274"W	0.21	
1671.00	1.580	105.870	1670.89	-2.93	7.35	1.15	40°16'08.221"N	105°01'23.253"W	1.11	
1763.00	3.720	125.500	1762.79	-5.95	5.27	4.80	40°16'08.200"N	105°01'23.206"W	2.49	
1854.00	6.010	126.680	1853.45	-10.85	0.71	11.02	40°16'08.155"N	105°01'23.126"W	2.52	
1944.00	7.100	115.490	1942.87	-18.09	-4.50	19.82	40°16'08.104"N	105°01'23.012"W	1.86	
2033.00	9.490	114.950	2030.93	-28.00	-9.96	31.44	40°16'08.050"N	105°01'22.862"W	2.69	
2125.00	12.190	121.350	2121.28	-40.66	-18.22	46.61	40°16'07.968"N	105°01'22.667"W	3.21	
2217.00	15.660	124.460	2210.57	-55.63	-30.30	65.15	40°16'07.849"N	105°01'22.428"W	3.86	
2309.00	19.460	124.460	2298.27	-73.92	-46.00	88.03	40°16'07.693"N	105°01'22.132"W	4.13	
2401.00	19.400	115.190	2385.05	-95.81	-61.18	114.50	40°16'07.543"N	105°01'21.791"W	3.35	
2491.00	18.790	110.190	2470.10	-119.29	-72.55	141.63	40°16'07.431"N	105°01'21.441"W	1.94	
2581.00	19.200	111.260	2555.20	-143.27	-82.91	169.03	40°16'07.329"N	105°01'21.087"W	0.60	
2671.00	19.340	116.240	2640.16	-166.63	-94.87	196.19	40°16'07.210"N	105°01'20.737"W	1.83	
2759.00	19.200	120.010	2723.24	-188.05	-108.55	221.79	40°16'07.075"N	105°01'20.407"W	1.42	
2851.00	19.270	124.410	2810.10	-208.88	-124.70	247.42	40°16'06.916"N	105°01'20.076"W	1.58	
2943.00	19.210	126.470	2896.97	-228.47	-142.27	272.11	40°16'06.742"N	105°01'19.758"W	0.74	
3035.00	19.140	124.710	2983.86	-247.92	-159.86	296.68	40°16'06.568"N	105°01'19.441"W	0.63	
3126.00	19.000	127.160	3069.87	-266.93	-177.30	320.75	40°16'06.396"N	105°01'19.130"W	0.89	
3218.00	19.750	128.910	3156.66	-285.56	-196.11	344.79	40°16'06.210"N	105°01'18.820"W	1.03	
3308.00	19.690	125.310	3241.39	-304.48	-214.43	368.99	40°16'06.029"N	105°01'18.508"W	1.35	
3398.00	19.690	118.880	3326.13	-325.36	-230.51	394.64	40°16'05.870"N	105°01'18.177"W	2.41	
3489.00	19.490	111.680	3411.88	-348.82	-243.53	422.18	40°16'05.741"N	105°01'17.822"W	2.66	
3580.00	19.080	107.470	3497.78	-373.74	-253.60	450.47	40°16'05.642"N	105°01'17.457"W	1.59	
3671.00	20.070	110.350	3583.52	-399.23	-263.50	479.30	40°16'05.544"N	105°01'17.085"W	1.52	
3761.00	20.300	108.330	3667.99	-425.07	-273.78	508.60	40°16'05.443"N	105°01'16.707"W	0.82	
3853.00	20.350	103.770	3754.27	-452.63	-282.61	539.29	40°16'05.355"N	105°01'16.311"W	1.72	
3945.00	19.850	101.680	3840.67	-480.78	-289.58	570.12	40°16'05.286"N	105°01'15.913"W	0.95	
4037.00	19.640	103.440	3927.26	-508.50	-296.33	600.46	40°16'05.220"N	105°01'15.522"W	0.69	



Actual Wellpath Report

MARKHAM 8 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 8
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 8 AWP
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (147 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4129.00	19.560	106.260	4013.93	-535.44	-304.24	630.28	40°16'05.141"N	105°01'15.137"W	1.03	
4219.00	19.980	107.940	4098.62	-561.41	-313.19	659.37	40°16'05.053"N	105°01'14.762"W	0.79	
4311.00	20.010	108.840	4185.08	-587.88	-323.12	689.22	40°16'04.955"N	105°01'14.377"W	0.34	
4403.00	20.030	108.290	4271.52	-614.33	-333.14	719.08	40°16'04.856"N	105°01'13.992"W	0.21	
4496.00	19.830	106.860	4358.95	-641.24	-342.72	749.30	40°16'04.761"N	105°01'13.602"W	0.57	
4588.00	19.770	109.760	4445.51	-667.48	-352.50	778.88	40°16'04.664"N	105°01'13.220"W	1.07	
4676.00	19.950	108.790	4528.28	-692.38	-362.37	807.10	40°16'04.567"N	105°01'12.856"W	0.43	
4767.00	19.760	110.290	4613.87	-718.04	-372.71	836.22	40°16'04.465"N	105°01'12.481"W	0.60	
4859.00	19.810	111.600	4700.44	-743.47	-383.84	865.30	40°16'04.355"N	105°01'12.105"W	0.49	
4951.00	19.530	118.470	4787.08	-767.38	-396.91	893.32	40°16'04.226"N	105°01'11.744"W	2.53	
5043.00	19.540	122.130	4873.79	-789.27	-412.42	919.87	40°16'04.072"N	105°01'11.402"W	1.33	
5134.00	19.560	124.580	4959.55	-809.76	-429.16	945.30	40°16'03.907"N	105°01'11.074"W	0.90	
5224.00	19.540	129.140	5044.36	-828.63	-447.21	969.38	40°16'03.729"N	105°01'10.763"W	1.70	
5316.00	19.630	128.860	5131.04	-847.05	-466.62	993.34	40°16'03.537"N	105°01'10.454"W	0.14	
5404.00	19.760	123.070	5213.90	-865.98	-484.01	1017.32	40°16'03.365"N	105°01'10.144"W	2.22	
5493.00	19.820	116.390	5297.66	-887.61	-498.93	1043.45	40°16'03.217"N	105°01'09.807"W	2.54	
5583.00	19.220	111.970	5382.49	-911.11	-511.26	1070.86	40°16'03.096"N	105°01'09.454"W	1.77	
5674.00	19.670	108.580	5468.30	-936.05	-521.74	1099.26	40°16'02.992"N	105°01'09.087"W	1.33	
5766.00	19.660	114.360	5554.94	-961.13	-533.06	1128.04	40°16'02.880"N	105°01'08.716"W	2.11	
5858.00	18.870	118.700	5641.79	-984.09	-546.59	1155.19	40°16'02.746"N	105°01'08.366"W	1.78	
5950.00	19.640	118.750	5728.65	-1006.26	-561.17	1181.80	40°16'02.602"N	105°01'08.023"W	0.84	
6042.00	18.870	124.740	5815.51	-1027.31	-577.09	1207.58	40°16'02.445"N	105°01'07.690"W	2.30	
6131.00	19.520	126.720	5899.56	-1046.09	-594.18	1231.33	40°16'02.276"N	105°01'07.384"W	1.03	
6221.00	19.650	124.350	5984.36	-1065.53	-611.71	1255.87	40°16'02.103"N	105°01'07.067"W	0.89	
6312.00	19.720	119.790	6070.04	-1086.66	-627.97	1281.83	40°16'01.942"N	105°01'06.732"W	1.69	
6404.00	19.640	115.490	6156.67	-1109.68	-642.33	1309.26	40°16'01.800"N	105°01'06.378"W	1.58	
6496.00	19.730	111.580	6243.30	-1134.14	-654.70	1337.66	40°16'01.678"N	105°01'06.012"W	1.43	
6588.00	19.610	113.490	6329.93	-1158.92	-666.56	1366.26	40°16'01.561"N	105°01'05.643"W	0.71	
6680.00	19.680	117.060	6416.58	-1182.74	-679.77	1394.21	40°16'01.430"N	105°01'05.283"W	1.31	
6769.00	19.640	116.880	6500.39	-1205.24	-693.35	1420.90	40°16'01.296"N	105°01'04.938"W	0.08	
6861.00	19.620	118.200	6587.05	-1228.25	-707.64	1448.30	40°16'01.155"N	105°01'04.585"W	0.48	
6907.00	15.940	125.510	6630.85	-1238.02	-714.96	1460.26	40°16'01.082"N	105°01'04.431"W	9.34	
6953.00	9.050	149.610	6675.76	-1243.11	-721.76	1467.24	40°16'01.015"N	105°01'04.341"W	18.48	
6999.00	8.230	193.960	6721.28	-1242.55	-728.08	1468.28	40°16'00.953"N	105°01'04.327"W	14.23	
7045.00	9.510	218.560	6766.75	-1237.96	-734.25	1465.11	40°16'00.892"N	105°01'04.368"W	8.62	
7090.00	9.310	227.600	6811.15	-1231.78	-739.61	1460.11	40°16'00.839"N	105°01'04.433"W	3.31	
7136.00	9.910	234.590	6856.50	-1224.81	-744.42	1454.13	40°16'00.791"N	105°01'04.510"W	2.85	
7181.00	13.340	244.650	6900.58	-1216.09	-748.88	1446.28	40°16'00.747"N	105°01'04.611"W	8.83	
7227.00	16.650	254.300	6945.01	-1204.29	-752.94	1435.14	40°16'00.707"N	105°01'04.755"W	8.99	
7273.00	18.390	258.900	6988.88	-1190.46	-756.12	1421.67	40°16'00.676"N	105°01'04.928"W	4.83	
7318.00	20.750	261.070	7031.28	-1175.43	-758.73	1406.83	40°16'00.650"N	105°01'05.120"W	5.49	
7363.00	25.710	260.010	7072.62	-1157.75	-761.66	1389.33	40°16'00.621"N	105°01'05.346"W	11.06	
7408.00	30.690	261.470	7112.26	-1136.58	-765.06	1368.35	40°16'00.587"N	105°01'05.616"W	11.17	
7452.00	35.210	267.250	7149.18	-1112.96	-767.33	1344.55	40°16'00.565"N	105°01'05.923"W	12.50	
7496.00	41.070	269.320	7183.78	-1086.47	-768.11	1317.41	40°16'00.557"N	105°01'06.273"W	13.63	



Actual Wellpath Report

MARKHAM 8 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 8
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 8 AWP
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (147 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7541.00	46.650	269.070	7216.21	-1056.16	-768.56	1286.24	40°16'00.553"N	105°01'06.676"W	12.41	
7585.00	51.480	268.040	7245.03	-1023.76	-769.40	1253.02	40°16'00.545"N	105°01'07.104"W	11.12	
7631.00	54.180	271.640	7272.83	-988.24	-769.49	1216.38	40°16'00.544"N	105°01'07.577"W	8.56	
7677.00	59.520	273.220	7297.97	-951.38	-767.84	1177.92	40°16'00.560"N	105°01'08.073"W	11.96	
7723.00	67.190	272.130	7318.59	-912.09	-765.93	1136.88	40°16'00.579"N	105°01'08.602"W	16.81	
7770.00	74.650	269.920	7333.94	-869.28	-765.16	1092.50	40°16'00.587"N	105°01'09.175"W	16.48	
7816.00	82.250	269.120	7343.15	-825.56	-765.54	1047.47	40°16'00.583"N	105°01'09.756"W	16.61	
7862.00	84.510	268.520	7348.45	-781.06	-766.48	1001.79	40°16'00.574"N	105°01'10.345"W	5.08	
7908.00	87.720	269.560	7351.57	-736.42	-767.25	955.91	40°16'00.566"N	105°01'10.937"W	7.33	
7954.00	90.250	270.410	7352.38	-691.85	-767.26	909.92	40°16'00.566"N	105°01'11.530"W	5.80	
8044.00	91.110	264.320	7351.31	-603.77	-771.40	820.07	40°16'00.525"N	105°01'12.689"W	6.83	
8134.00	90.060	260.700	7350.39	-514.43	-783.13	730.85	40°16'00.409"N	105°01'13.840"W	4.19	
8224.00	89.970	260.160	7350.37	-424.74	-798.09	642.11	40°16'00.261"N	105°01'14.985"W	0.61	
8316.00	90.060	263.580	7350.34	-333.29	-811.10	551.05	40°16'00.133"N	105°01'16.160"W	3.72	
8408.00	90.460	269.380	7349.93	-242.96	-816.74	459.26	40°16'00.077"N	105°01'17.344"W	6.32	
8500.00	90.950	270.620	7348.79	-153.83	-816.74	367.27	40°16'00.077"N	105°01'18.530"W	1.45	
8592.00	91.660	268.710	7346.70	-64.58	-817.28	275.30	40°16'00.072"N	105°01'19.717"W	2.21	
8684.00	91.510	270.310	7344.15	24.71	-818.07	183.34	40°16'00.064"N	105°01'20.903"W	1.75	
8775.00	91.600	267.900	7341.68	113.19	-819.49	92.39	40°16'00.050"N	105°01'22.076"W	2.65	
8865.00	91.420	268.870	7339.31	200.95	-822.02	2.46	40°16'00.025"N	105°01'23.236"W	1.10	
8955.00	91.350	271.700	7337.14	288.01	-821.58	-87.50	40°16'00.029"N	105°01'24.397"W	3.14	
9045.00	90.920	272.240	7335.35	374.38	-818.48	-177.43	40°16'00.060"N	105°01'25.557"W	0.77	
9136.00	90.890	271.050	7333.92	461.86	-815.87	-268.38	40°16'00.086"N	105°01'26.730"W	1.31	
9226.00	91.050	269.560	7332.39	548.92	-815.39	-358.37	40°16'00.090"N	105°01'27.891"W	1.66	
9316.00	91.050	270.120	7330.74	636.17	-815.64	-448.35	40°16'00.088"N	105°01'29.052"W	0.62	
9407.00	91.050	270.860	7329.08	724.13	-814.86	-539.33	40°16'00.096"N	105°01'30.225"W	0.81	
9499.00	90.990	271.900	7327.44	812.69	-812.65	-631.29	40°16'00.117"N	105°01'31.412"W	1.13	
9591.00	90.980	271.740	7325.86	901.05	-809.73	-723.23	40°16'00.146"N	105°01'32.598"W	0.17	
9681.00	90.990	270.350	7324.31	987.81	-808.09	-813.20	40°16'00.162"N	105°01'33.758"W	1.54	
9773.00	90.950	267.560	7322.75	1077.33	-809.76	-905.16	40°16'00.146"N	105°01'34.945"W	3.03	
9863.00	90.920	266.270	7321.28	1165.59	-814.61	-995.02	40°16'00.098"N	105°01'36.104"W	1.43	
9955.00	90.890	268.560	7319.83	1255.65	-818.76	-1086.90	40°16'00.057"N	105°01'37.289"W	2.49	
10044.00	90.800	270.650	7318.52	1342.02	-819.37	-1175.89	40°16'00.051"N	105°01'38.437"W	2.35	
10134.00	91.020	271.320	7317.09	1428.82	-817.82	-1265.86	40°16'00.066"N	105°01'39.598"W	0.78	
10226.00	91.350	271.240	7315.18	1517.41	-815.77	-1357.82	40°16'00.086"N	105°01'40.784"W	0.37	
10316.00	91.290	270.540	7313.11	1604.23	-814.37	-1447.78	40°16'00.100"N	105°01'41.944"W	0.78	
10407.00	91.480	269.800	7310.91	1692.31	-814.10	-1538.76	40°16'00.103"N	105°01'43.118"W	0.84	
10499.00	90.180	271.630	7309.58	1781.15	-812.95	-1630.73	40°16'00.114"N	105°01'44.304"W	2.44	
10591.00	90.030	272.250	7309.41	1869.47	-809.84	-1722.68	40°16'00.145"N	105°01'45.491"W	0.69	
10681.00	90.120	270.990	7309.29	1956.00	-807.29	-1812.64	40°16'00.170"N	105°01'46.651"W	1.40	
10772.00	90.920	269.110	7308.47	2044.15	-807.21	-1903.63	40°16'00.170"N	105°01'47.825"W	2.25	
10864.00	90.950	264.420	7306.96	2134.39	-812.40	-1995.45	40°16'00.119"N	105°01'49.009"W	5.10	
10953.00	90.830	265.430	7305.58	2222.23	-820.28	-2084.09	40°16'00.041"N	105°01'50.153"W	1.14	
11044.00	90.990	269.420	7304.14	2311.29	-824.36	-2174.97	40°16'00.001"N	105°01'51.325"W	4.39	
11136.00	91.110	267.560	7302.45	2400.98	-826.79	-2266.92	40°15'59.977"N	105°01'52.511"W	2.03	



Actual Wellpath Report

MARKHAM 8 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 8
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 8 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH DATA (147 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11228.00	90.950	267.140	7300.80	2491.06	-831.04	-2358.80	40°15'59.935"N	105°01'53.696"W	0.49	
11316.00	90.990	268.120	7299.31	2577.14	-834.68	-2446.71	40°15'59.899"N	105°01'54.830"W	1.11	
11409.00	90.890	268.010	7297.78	2667.97	-837.82	-2539.65	40°15'59.868"N	105°01'56.029"W	0.16	
11500.00	90.860	268.640	7296.39	2756.75	-840.48	-2630.60	40°15'59.841"N	105°01'57.203"W	0.69	
11593.00	90.920	268.700	7294.95	2847.36	-842.64	-2723.56	40°15'59.820"N	105°01'58.402"W	0.09	
11683.00	90.920	267.860	7293.50	2935.18	-845.34	-2813.51	40°15'59.793"N	105°01'59.562"W	0.93	
11775.00	90.830	267.620	7292.10	3025.14	-848.96	-2905.43	40°15'59.757"N	105°02'00.748"W	0.28	
11865.00	90.620	268.740	7290.96	3112.99	-851.82	-2995.37	40°15'59.729"N	105°02'01.908"W	1.27	
11958.00	90.830	270.750	7289.78	3203.19	-852.24	-3088.36	40°15'59.724"N	105°02'03.108"W	2.17	
12050.00	90.770	272.050	7288.50	3291.74	-849.99	-3180.32	40°15'59.747"N	105°02'04.294"W	1.41	
12141.00	90.580	273.590	7287.42	3378.69	-845.51	-3271.20	40°15'59.791"N	105°02'05.466"W	1.71	LAST BHI MWD SURVEY
12163.00	90.580	273.590	7287.20	3399.62	-844.13	-3293.16	40°15'59.804"N	105°02'05.750"W	0.00	PROJECTION TO BIT

HOLE & CASING SECTIONS - Ref Wellbore: MARKHAM 8 AWB Ref Wellpath: MARKHAM 8 AWP

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
13.5in Open Hole	17.00	1539.00	1522.00	17.00	1538.91	0.00	0.00	7.95	-0.86
9.625in Casing Surface	17.00	1529.00	1512.00	17.00	1528.91	0.00	0.00	7.98	-0.94
8.75in Open Hole	1539.00	12163.00	10624.00	1538.91	7287.20	7.95	-0.86	-844.13	-3293.16



Actual Wellpath Report

MARKHAM 8 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 8
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 8 AWB
Facility	SEC.32-T04N-R68W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SECTION 32-T04N-R69W	-9.00	-112.93	2.79	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
SECTION 32-T04N-R69W SOUTHERN HALF 460' SETBACKS	7059.30	-112.93	2.79	3133072.76	1341057.53	40°16'07.032"N	105°01'23.232"W	polygon
MARKHAM 8 BHL REV-3 ON PLAT (CDLL 1650'FSL & 460'FWL SEC 32)	7262.80	-844.96	-3309.78	3129764.33	1340307.74	40°15'59.796"N	105°02'05.964"W	point
MARKHAM 8 BHL REV-4 ON PLAT (CDLL 1650'FSL & 460'FWL SEC 32)	7272.80	-844.96	-3309.78	3129764.33	1340307.74	40°15'59.796"N	105°02'05.964"W	point
MARKHAM 8 BHL REV-5 ON PLAT (CDLL 1650'FSL & 460'FWL SEC 32)	7273.68	-844.96	-3309.78	3129764.33	1340307.74	40°15'59.796"N	105°02'05.964"W	point
MARKHAM 8 BHL REV-2 ON PLAT (CDLL 1650'FSL & 460'FWL SEC 32)	7307.00	-844.96	-3309.78	3129764.33	1340307.74	40°15'59.796"N	105°02'05.964"W	point
MARKHAM 8 WP 3	7309.80	-822.30	-2016.20	3131057.71	1340337.35	40°16'00.021"N	105°01'49.277"W	point
MARKHAM 8 BHL REV-1 ON PLAT (CDLL 1650'FSL & 460'FWL SEC 32)	7313.00	-844.96	-3309.78	3129764.33	1340307.74	40°15'59.796"N	105°02'05.964"W	point
MARKHAM 8 WP 2	7329.50	-799.40	-710.70	3132363.01	1340367.27	40°16'00.248"N	105°01'32.436"W	point
MARKHAM 8 WP 1	7330.80	-789.00	-110.80	3132962.82	1340380.90	40°16'00.351"N	105°01'24.697"W	point

WELLPATH COMPOSITION - Ref Wellbore: MARKHAM 8 AWB Ref Wellpath: MARKHAM 8 AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1487.00	Custom BHI NaviTrak (Standard Rotating+Axial Corr) (Rockies 0.03Gt model)	BHI NAVITRAK MWD AXIAL ROCKIES GT <142-1487>	MARKHAM 8 AWB
1487.00	12141.00	Custom BHI AutoTrak Curve (Axial Corr, Short spacing) (Rockies 0.03Gt model)	BHI ATC (SHORT) MWD 8.75"-<1581-12141>	MARKHAM 8 AWB
12141.00	12163.00	Blind Drilling (std)	Projection to bit	MARKHAM 8 AWB



Actual Wellpath Report

MARKHAM 8 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	CUB CREEK ENERGY, LLC	Slot	SLOT#08 MARKHAM 8 (2437'FSL & 1516'FEL SEC 32)
Area	COLORADO	Well	MARKHAM 8
Field	WELD COUNTY (NAD83, TRUE NORTH)	Wellbore	MARKHAM 8 AWB
Facility	SEC.32-T04N-R68W		

WELLPATH COMMENTS					
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment	
142.00	0.150	167.600	142.00	FIRST BHI MWD SURVEY	
12141.00	90.580	273.590	7287.42	LAST BHI MWD SURVEY	
12163.00	90.580	273.590	7287.20	PROJECTION TO BIT	